

## Right Hemicolectomy

By E. G. MUIR, M.S., F.R.C.S.

"AT last a case was satisfactorily completed so far as the operation was concerned; but I knew from the first that this was one of the typically malignant class, and that life could not be much prolonged." Thus Paul (1895), the British apostle of large bowel surgery, ended the description of his first successful case of resection and restoration of continuity for a carcinoma of the ascending colon. From that time he put away the decalcified bone tubes with which he had been attempting to anastomose the large bowel and used only the method which bears his name. Though the first successful case in this country was on the right, the Paul or Paul-Mikulicz operation soon became popular on the left colon while other methods were adopted for an ileocaecal resection. Arbuthnot Lane, reputedly a master of technique, who in 1895 dismissed colectomy in his "Manual of Operative Surgery" in a few lines and the note that "Mr. Bryant first performed this operation successfully", was in 1909 advising a right, or even larger colectomy for chronic constipation and intestinal toxæmia and relying on intra-abdominal anastomosis without bowel drainage. His usual method was a two-stage resection with a preliminary ileotransverse colostomy. This, or the one-stage resection and anastomosis, has remained the most popular operation in this country. In 1932 Gabriel described the combination of this method with catheter drainage of the colon at the anastomosis. Lahey's revised Paul-Mikulicz operation for right hemicolectomy has recently been advocated by Maingot (1945), who has stressed the safety of this method. The American symposium on colonic surgery published in 1943 gave an interesting cross-section of present American surgical opinion which is by no means in favour of this method, whose necessary defects are the small bowel fistula and the delay in closure. Thus Wangenstein prefers primary resection with end-to-end aseptic anastomosis under constant suction with a duodenal or Millar-Abbott tube for five days. Whipple considers pre- and post-operative decompression with a Millar-Abbott tube and an open anastomosis to be the choice. Jones advises a right end-to-side ileotransverse colostomy with a small catheter inserted into the ileum 6 to 8 in. (15 to 20 cm.) above the anastomosis, but adds that he now prefers a Millar-Abbott tube instead of the catheter. Allen advises the two-stage attack with a preliminary ileotransverse colostomy.

There are certain points in connexion with this operation and indeed all colonic surgery which all surgeons will accept as fact; others depend on individual fancy. Thus, fluid balance and the body requirements, the prevention and treatment of shock, good anaesthesia, bowel chemotherapy before operation, the prevention, early recognition and effective treatment of chest complications are all accepted as important. To Wangenstein, amongst others, surgery owes a debt for the stress laid on intestinal distension, its prevention and treatment; gastric suction is now widely used. The extent of the resection for a right hemicolectomy shows little variation, nor would any now contend that less can be resected by an exteriorization method than by another. On the other hand there are many different methods of anastomosis and suture. Right hemicolectomy cannot always be a planned operation; the conditions requiring it may be discovered unexpectedly or in emergency surgery.

The ideal operation is surely one which permits of a one-stage resection and anastomosis in all but the worst cases; where no secondary operation is required; where no factor making for safety is ignored and provision is made, should an intra-abdominal anastomosis leak, to minimize the disaster.

I believe that the following operation fulfils most of these requirements.

### THE OPERATION

I have employed a Millar-Abbott tube in those cases with pre-operative distension and a resection below it gives a pleasant feeling of security but while I have not had the opportunity to use the tube when fitted with a stylet, the ordinary pattern can occasion both irritation and distress to patient and surgeon alike if it takes long to pass through the pylorus. Since other provision is made by this operation it is not used as a routine. Gastric or duodenal tube suction is employed either immediately before, or as soon after operation as possible.

A right paramedian incision is used. After clearing the omentum from the right third of the transverse colon, the part to be resected is mobilized in the usual manner and the mesentery divided. Non-crushing clamps are then applied above and below, that on the ileum being applied, after emptying the bowel as much as possible, some 10 in. (25.4 cm.) above the point of resection. The bowel is removed, ensuring a good blood supply at the point of colonic division. The end of the ileum is now closed and a side-to-side antiperistaltic anastomosis made with the colon 2 in. (5 cm.) distal to the clamp closing the divided end of

the colon. This clamp is now oversewn and the divided end of the colon closed except for half a centimetre at that corner farthest from the anastomosis. A soft rubber tube, about the size of a 12 or 13 catheter, but with a rather larger lumen, some 16 in. (40.6 cm.) in length and with lateral holes cut in it for 10 in. (25.4 cm.) from the end, is now inserted through this gap in the end of the colon, through the anastomosis and up the lumen of the ileum. The last lateral hole should lie about 1 in. (2.5 cm.) within the colon. The tube is stitched to the colon and the bowel turned in around it with a number of circular sutures as in a gastrostomy. The soft clamps are now removed and some of the terminal coils of ileum are gently threaded along the rubber ileostomy tube. At the same time suction can be applied to the tube and if there has been any distension some quiet effective decompression of the terminal ileum can be carried out without any harsh treatment of the small bowel. The gap in the mesentery and the raw surface on the posterior abdominal wall are now closed. The omentum is wrapped round the ileostomy tube and the anastomosis.

A small stab incision is now made through the abdominal wall about 2 in. (5 cm.) below the right costal margin and outside the rectus sheath, about the size of that made for a terminal colostomy but without the excision of skin. The peritoneum is opened and its edges held in forceps. The ileostomy tube is now brought out through this incision and the colon around it sutured to the peritoneal edges by a number of interrupted sutures. The skin edges may require a stitch and the tube is anchored to the skin. The abdomen is then closed.

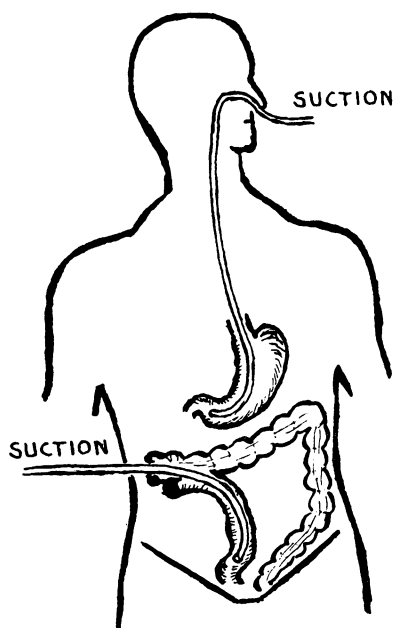


FIG. 1.—Combined gastric and ileal suction drainage.

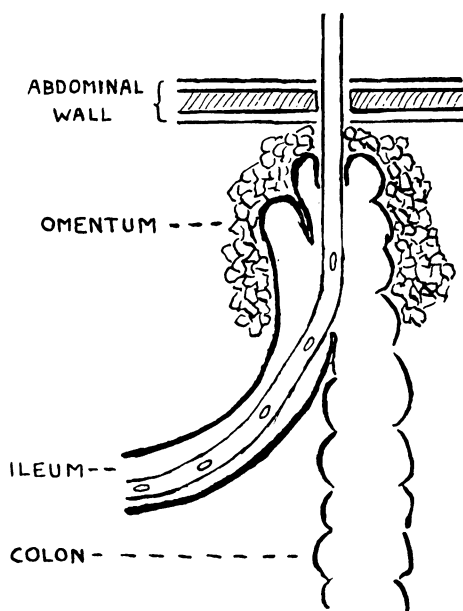


FIG. 2.—Ileostomy tube.

#### POST-OPERATIVE TREATMENT

In a planned proceeding an intravenous drip is set up before the abdomen is opened. If not, it is commenced either during or immediately after the operation. Apart from the prevention and treatment of shock the patient relies on this route for all his fluid requirements for at least forty-eight hours, that amount being judged sufficient which will approximate a normal urinary output.

Constant suction is applied to both the gastric and ileostomy tubes. The ileostomy tube may become blocked and require gentle syringing through with a little water or saline. Gastric suction is discontinued after forty-eight hours if the ileostomy tube is satisfactory in its drainage and fluids are then started by mouth. The intravenous drip is discontinued when the patient is taking sufficient by mouth.

The ileostomy tube is removed after a week or when it is loose. Some leakage may take place through the wound for a few days, but in a third of my cases no leakage occurred and the longest that an intestinal fistula persisted was a fortnight. No secondary operation has ever been necessary.

I have now performed this operation on twenty cases: Carcinoma 10, Crohn's disease 7, sarcoma 1, volvulus 1, intussusception 1.

There has been no mortality but one post-operative mishap. Here the patient's paramedian incision broke down, a coil of small bowel became lodged in the wound, a small bowel fistula from this coil developed and the wound took three months before it was finally healed.

#### COMMENT

I believe this operation has certain advantages and that it is applicable to all but the worst cases. It is a one-stage resection; no second operation to close a fistula is necessary. Though the anastomosis is intraperitoneal it is fixed to the parietal peritoneum beneath an abdominal incision and should sepsis occur within its omental wrappings it has at least an excellent opportunity to reach the exterior. The anastomosis is placed so that it covers the upper part of the "raw" area left by the resection. Not only is decompression drainage provided for the upper part of the alimentary tract by the gastric suction but the lower reaches of the ileum, that danger area in the post-operative case, are also drained and can be emptied considerably at operation. There may be dangers in introducing a rubber tube through an anastomosis, but I have seen no ill-effects. It is perhaps apposite to point out that Wangenstein (1943) has described two cases in which, with a Millar-Abbott tube in the lower ileum, it was yet necessary to put a duodenal tube down the patient's other nostril for post-operative distension. That this can occur once the small bowel has been "swept and garnished" by the passage of a Millar-Abbott tube and with the tube still in position, is surely good evidence of the part played in post-operative distension by aerophagy.

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#### A Small High-grade Carcinoma of the Rectum with Extensive Lymphatic Spread.— W. B. GABRIEL, M.S.

R. B., male, aged 48.

*History.*—His chief complaint was of piles, with latterly more prolapse and some burning pain at defæcation.

*Examination* on 12.11.45 at St. Mark's Hospital revealed a curious indurated elongated plaque in the left anterior quadrant of the anal canal and extending up the rectal wall for about  $\frac{1}{2}$  in. (1.25 cm.). The condition suggested at first a recent thrombosis or possibly an early squamous-cell carcinoma.

*Biopsy.*—A month later the condition was unchanged and an examination under low spinal anaesthesia was done. An indurated cord of lymphatic spread was felt running up the mesorectum in the left posterior quadrant which strongly indicated the diagnosis of malignancy. A biopsy was done and Dr. C. E. Dukes reported that the tumour was a very undifferentiated type of carcinoma of a high grade of malignancy.

*Operation.*—On 17.12.45 a laparotomy was done under a nupercaine spinal, 1.2 c.c., with pentothal, gas, oxygen, ether. The liver was smooth but some palpably enlarged glands were felt in the mesorectum on the left side. A perineo-abdominal excision was carried out and uneventful recovery followed, the patient being discharged home on the twenty-sixth post-operative day, 12.1.46.

*Pathological findings* (Dr. C. E. Dukes).—*Gross characters:* The specimen measured 15 in. (38 cm.). There was no obvious tumour, the only visible abnormality being a small hard ridge in the anal canal and lower third of the rectum over which the mucous membrane was not ulcerated. This ridge could be felt to be in continuity with a thickening around the hæmorrhoidal vessels lying in the perirectal tissues. A cord of hard tissue extended up the course of the hæmorrhoidal vessels for several inches. No papillomata were present but diverticula were seen in the distal end of the pelvic colon.

*Microscopic structure:* The tumour is a colloid carcinoma, very undifferentiated in character, consisting chiefly of isolated signet cells or clusters of signet cells embedded in mucoid material.